

Gastric Bypass Surgery for Obesity

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Obesity, a risk factor for chronic disease, is rapidly increasing in both Rhode Island and the United States.¹ As of 2001, 17.7% of Rhode Island adults and 20% of adults nationally are obese. Accordingly, targets for the reduction of overweight and obesity have been included in the Leading Health Indicators for Healthy People 2010 and Healthy Rhode Islanders 2010.^{2,3} Proposed population-based interventions to meet these targets include behavior changes to improve diet and increase exercise among the overweight.

For extremely obese persons, whose weight presents an immediate threat to their health and for whom behavior change has repeatedly failed, surgical procedures are available as a method of weight reduction and control. The most common of these procedures, gastric bypass surgery, has been performed increasingly often since 2000, and laparoscopic methods have been developed that reduce the invasiveness of the procedure, the likelihood of complications, and the length of stay required in the hospital. This analysis presents findings on the performance of gastric bypass surgery in Rhode Island.

Methods. The Rhode Island Department of Health conducts the annual Behavioral Risk Factor Survey, a telephone survey of a sample of Rhode Island adults concerning health-related risks and behaviors, including specifically height and weight. In 2001, the survey obtained 3,866 responses. For respondents, overweight and obesity are based on the Body Mass Index (BMI), calculated as weight in kilograms divided by the square of height in meters. For this analysis, the BMI is used to determine obesity ($\text{BMI} > 30 \text{ kg/m}^2$) and morbid obesity ($\text{BMI} > 40 \text{ kg/m}^2$) among respondents, both male and female. (Table 1)

Table 1.

Height (feet/inches)	Weight (pounds)	
	At BMI = 30	At BMI = 40
5'0"	154	205
5'2"	164	219
5'4"	175	233
5'6"	186	248
5'8"	198	263
5'10"	209	279
6'0"	221	295
6'2"	234	312
6'4"	247	329

Information on inpatient surgical procedures was obtained from Rhode Island Hospital Discharge Data (HDD), patient-level records submitted to the Department of Health from the state's acute care hospitals on a quarterly basis. The HDD include patient demographics, multiple diagnosis and procedure codes, utilization details, and discharge status. For this analysis, gastric bypass surgery was defined as ICD-9-CM⁴ procedure codes 44.31 [High gastric bypass] and 44.39 [Other gastroenterostomy]. ICD-9-CM⁴ diagnosis codes for obesity are 278.00 [Obesity, unspecified] and 278.01 [Morbid obesity]. For trends, HDD from calendar years 1995 through 2001 and for January–September 2002 were analyzed. For description of current practice, HDD from January 2000 through September 2002 were grouped.

Results. In 2001, an estimated 17.7 percent of Rhode Island adults were obese, based on their reported height and weight. Included in that group are those who were morbidly obese based on the BMI definition, comprising 1.5% of the state's adults, or over 11,000 persons. These persons represent potential candidates for gastric bypass surgery.

During the first five years of the period for which hospital data were examined, the number of patients undergoing gastric bypass surgery as their first-listed procedure remained stable, averaging 28 per year. Beginning in 2000, the number of such patients approximately doubled in each successive year, resulting in an estimated eight-fold increase by 2002. (Figure 1) Over the same period, the average length of stay experienced by these patients fell from over 20 days to under 5 days, with most of the decrease occurring during the period of expanding volume. (Figure 2) Although the procedural approach is not indicated by the procedure codes for this type of surgery, it is likely that the reduced length of stay is due in great part to the adoption of laparoscopic techniques.

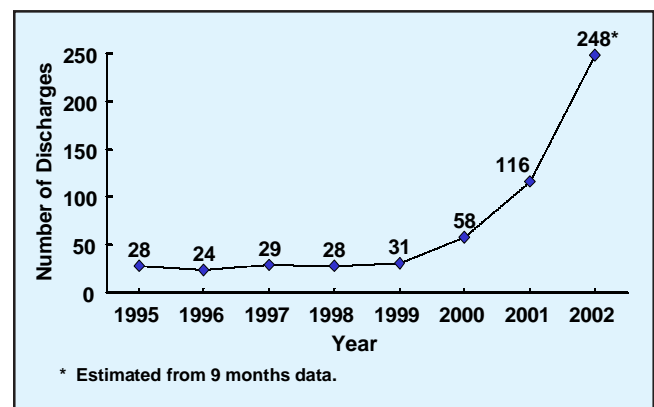


Figure 1. Inpatient Discharges with First-Listed Procedure of Gastric Bypass, Rhode Island, 1995-2002.

During the period January 2000 – September 2002, 360 patients underwent gastric bypass surgery as their first-listed procedure. Of these, 293 (81.4%) had obesity as their principal diagnosis. For January – September 2002, 175

Health by Numbers

(94.1%) of the 186 surgical patients had obesity as their principal diagnosis. The large majority of procedures during 2000-2002 were performed at Rhode Island Hospital (55.3%) or Roger Williams Medical Center (31.1%)

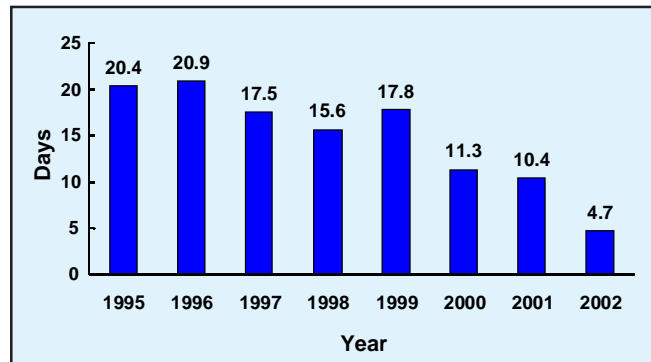


Figure 2. Average Length of Stay for Inpatient Discharges with First-Listed Procedure of Gastric Bypass, Rhode Island, 1995-2002.

All gastric bypass surgeries during the recent period were performed on adults, with the largest percentage of patients being ages 18-44 years (48.6%) or ages 45-64 (40.0%). (Figure 3) Female patients outnumbered male patients overall (78.3%) as well as within each age group. Most patients were discharged home from the hospital (93.3%), and a small proportion (2.2%) died in the hospital. The rest were transferred to a variety of other health care facilities, most notably nursing facilities (3.6%).

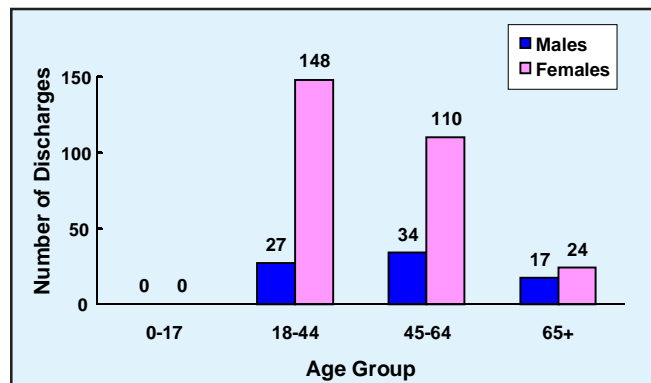


Figure 3. Inpatient Discharges with First-Listed Procedure of Gastric Bypass, by Age Group and Sex, Rhode Island, 2000-2002.

During 2000-2002, 60 patients underwent gastric bypass surgery secondary to some other first-listed procedure. This smaller

group of patients experienced a longer average length of stay (27.0 days) than patients with gastric bypass surgery as their first-listed procedure (7.6 days) and a higher in-hospital mortality rate (11.7%). The number of patients in this group varied between 19 and 28 per year during 1995-2002, with no apparent trend.

Discussion. For the large proportion of the population that is overweight or even moderately obese, the appropriate strategy for reducing their long-term risks for chronic diseases is weight reduction through diet modification and increased exercise. However, there is a much smaller group whose obesity presents substantial short-term risks for disease and death. For many of these persons, behavioral change has failed repeatedly to control their weight. As a result, they are turning in increasing numbers to the surgical solution of a gastric bypass procedure.

The adoption of gastric bypass surgery as a treatment for morbid obesity in Rhode Island has occurred in just the past three years. It appears to have been spurred by the development of less-invasive surgical techniques that reduce the length of stay required, the costs involved, and, presumably, the risk to the patient. Given the number of persons in the state whose weight places them in the morbid obesity range, and the observed trends in the weight distribution of the state's population,¹ there is sufficient demand to fuel further rises in the rate of performance of gastric bypass surgery.

As in the case of any surgical procedure for which there is rapidly expanding demand, there is the potential for adverse outcomes and for inappropriate utilization. The data presented here document the overall pattern of utilization and outcomes, but the true monitoring of quality of care involved in these procedures must be done by the surgeons who perform them and the facilities where they are performed, working with Quality Improvement Organizations, third-party payers, and accrediting organizations.

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Originally published in the March 2003 issue of *Medicine & Health / Rhode Island*

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